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ABSTRACT

The Diagnostic Spelling Test is an experimental modification of the Wide Range Achievement Test (WRAT), Spelling (Level II), which measures a student's ability to identify the correct spelling of each word in a four-alternative multiple-choice format. Each incorrect alternative is designed to reflect a specific type of spelling problem found in disabled learners and not in the general population. It is designed for diagnostic use along with the regular WRAT reading and spelling tests to identify problems in cross-modal learning involving visual and auditory integration. It also has potential for screening large groups to identify students with specific learning disabilities. (Author)

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THE DIAGNOSTIC SPELLING TEST:

A MODIFICATION OF

THE WIDE RANGE ACHIEVEMENT TEST, SPELLING (LEVEL II)

A PROGRESS REPORT

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THE DIAGNOSTIC SPELLING TEST:

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A PROGRESS REPORT

Assessment of learning disabilities in adolescents is complicated by a lack of suitable diagnostic instruments. One of the few effective instruments is the Wide Range Achievement Test, probably the most widely used measure of academic skill development. In the Fullerton Union High School District it has been used not only to provide a measure of academic functioning level but also to determine through subjective psychological evaluation the kinds of errors made by learning-disabled students in Grades 9 through 12.

With the permission of J. Jastak and Guidance Associates, the Diagnostic Spelling Test, a multiple-choice variation of the WRAT spelling test (Level II), has been developed as an aid in differential diagnosis of learning disabilities. Spelling is a complex task, requiring long-term memory for visual symbol sequences, which must correspond to the auditory sequences which they represent, plus the motor ability to translate the visual sequences into visual-motor equivalents. A multiple-choice spelling test is essentially a recognition-association task, with limited demands on the memory and visual-motor response kept to a minimum. It, therefore, makes possible more direct evaluation of the ability to associate the spoken word with its written equivalent. By comparing performance on a recognition task with the more complex reformulation task required in spelling the same words, it may be possible to identify difficulties in the auditory-visual integration process which may be obscured in the conventional form of the test.

However, in most multiple-choice tests the incorrect answers are, in effect, wasted, since they provide no readily useful information in themselves. By formulating incorrect alternative spellings to reflect specific problems characteristic of the work of learning-disabled children, it then becomes possible to determine the kinds of error patterns that may be typical of particular groups or individuals. It is therefore hypothesized that the multiple-choice test would discriminate between normal and disabled learners, and that useful diagnostic information would be obtained from coded error responses. The auditory-visual integration process is not limited to spelling alone but is an important aspect of all reading and written language functions.

RESEARCH

According to J. Jastak (1965), reading consists of "transcoding a series of visual-motor symbols into oral or suboral sound sequences." He uses the term "transcoding" to mean "the central processing of auditory input to allow unimpeded visual and motor output and vice-versa," considering reading disability an impairment of the transcoding process. Money (1966) calls this process "oral-visual matching." Johnson and Myklebust (1967) described dyslexia as an "inter neurosensory learning disability," and Myklebust (1971) has more recently elaborated this position. He points out that although a learning task may be primarily auditory, visual, or tactile, it "may require converting what is acquired through one modality into the equivalents of another— a cross-modal process." He considers the inability to manage this process as "a cognitive disorder of serious consequences." Chalfant (1971) presents an even more emphatic view when he states that the problem of "multisensory integration". . .may well be the single most important problem" in working with learning-disabled children. A similar emphasis is put forth by Tarnapol (1969) (a), who states that "integrative dysfunctions seem to underly the more common language disorders."

Although these statements from well-known authorities in the field of learning disabilities are very clear about the importance of cross-modal learning, very little investigation has actually been done in this area. The ITPA (1961) breaks down psycholinguistic behavior into three processes—receptive, expressive, and organizing or central mediating processes. Nevertheless, most of the work based on the ITPA model has concerned itself with receptive and/or expressive problems. The ITPA emphasis on auditory and visual channels of learning has also served to encourage research in these areas. For example, Boder (1971) has developed diagnostic categories based on auditory and visual modalities. Perhaps because approaches to the measurement of integrative functions are not so immediately apparent, the central mediating activities have been less well examined. Since the differential diagnosis techniques exemplified by the ITPA also tend to isolate auditory and visual channels for separate study, little work has been done on the integration of these two basic modes of learning. Birch and Belmont (1964) developed a method of measuring auditory and visual integration by utilizing a series of patterns formed by dot sequences and corresponding auditory sound patterns. Muehl (1966) followed up on this work, using matching tasks involving auditory to auditory, visual to visual, auditory to visual, and visual to auditory. He found the visual matching task the easiest and the auditory the most difficult, with auditory to visual more difficult than visual to auditory. He suggested that the auditory tasks may prove to be more difficult since the patterns cannot be presented simultaneously and therefore always imply the involvement of time sequence and memory. Zigmond (1969) also used the Birch and Belmont test, now called the Test of Auditory-Visual Equivalences. She found that all interneurosensory measures showed significant differences between dyslexics and controls and all auditory measures did so as well. However, three of four visual measures did not discriminate

She, therefore, concludes that intersensory disabilities are more auditory than visual. However, Tarnapol describes an evaluation battery by Wolf in which only one of eight types of reading errors was significant -- reversals. Myklebust (1972) comments on sequentialization problems, both auditory and visual, and feels that dyslexics tend to omit or distort syllables. He considers this problem an inability to distinguish all the parts in the whole and describes the problem as a defect in visual patterning. Chalfant comments that "the development of automatic sequential behavior is important for both auditory and visual learning." The automatic nature of the reading process is emphasized by Bateman, who feels that reading should be taught as a "rote, conditioned, mechanical process of connecting letters to sounds."

It may be that some of the different conclusions reached by independent investigators reflect differences in materials used and in methods of presentation. Katz (1963) studied responses to auditory cues (sounds) and visual cues (lights), finding that poor readers showed difficulty in shifting rapidly from one modality to the other. He postulated an attentional deficiency. Muehl's study found that auditory matching was not correlated significantly with reading problems and felt that the lack of relationship could have been related to the nature of the Birch and Belmont material, which uses pure tones matched with simple dot patterns. He suggested that perhaps auditory discrimination, which is required at a much higher level in actual verbal materials, is an essential element in reading assessment. Chalfant states that if a response must occur through a modality different from the one through the stimulus was presented, then greater demands are placed on the central processing system. The neurological bases for some of these problems in intersensory processing are described by Masland (1970). He states that language is concerned with auditory events in temporal sequences, and probably the

left hemisphere of the brain is more effective in these processes. Visual and kinesthetic processes involve spatial rather than temporal relationships, with the right hemisphere more effectively involved. Masland feels that language disabled children may have bilateral lesions, with both hemispheres affected. There is also the possibility that in some instances there may be some defect in the brain stem or basal ganglia through which information is transmitted to high brain structures. Still other problems may be the result of "genetically or constitutionally determined organizational defects or peculiarities which make it impossible to form proper associations.

A study which may lend support to Masland's hypotheses has been done by Senf (1969), who tested learning-disabled and normal readers ranging in age from 7 to 15 on a task requiring them to recall different stimuli presented simultaneously through auditory and visual modalities, thus producing audio-visual pairs. While normal readers remembered the material in the expected pairs, learning-disabled readers recalled within sensory modalities and had a great difficulty in recalling by pairs when required to do so. The ability to learn in audio-visual pairs was noted to be developmental in nature, with improvement in normal readers throughout elementary school and on into junior high. In contrast, disabled learners did not develop the pairing skill but were able to learn in separate modality sets as well as normal readers.

At present recommendations for evaluation of intersensory functioning are being considered by several authors, including Myklebust, Zigmond, and Sprainge. Zigmond has experimented with a modification of the Birch and Belmont test with increased difficulty levels. Myklebust uses the Gates-McKillop Reading Diagnostic Test. Sprainge (1969) lists an Auditory-Visual Matching Test as one of her Social Nonverbal Auditory Tests, but the test is not described. The Gates-McKillop series is most

closely related to academic work and the present investigation. The Syllabication section requires a child to read nonsense words aloud, and the Nonsense Words section requires him to choose a written version of a spoken nonsense word.

RATIONALE

In the Diagnostic Spelling Test, the technique of presentation follows roughly the pattern of the Gates-McKillop Nonsense Words. However, by tying the material directly to the Wide Range spelling test, several advantages are gained:

(1) Direct, quantitative comparison can be made with Wide Range scores.

(2) The familiar type of academic presentation can be maintained. In our experience, high school students are threatened by nonsense words and other types of non-academic material that are readily accepted by young children.

(3) The results are directly rather than indirectly related to language skill level. Past experience with the words on the list may certainly be expected to influence results, an aspect of learning which is deliberately omitted in nonsense-word materials but which is an important and integral part of the student's actual functioning in language areas.

(4) The coding of errors by categories provides further clues to specific areas of disability in the auditory-visual integration process.

If an instrument is to provide useful diagnostic information, it must distinguish between normal performance and atypical performance in a systematic, consistent fashion. If the Diagnostic Spelling Test is to be of value in assessing learning disabilities, it must differentiate disabled learners from average students. It should also discriminate between disabled learners and students in classes for the mentally retarded. Since the recognition task on the multiple-choice test should be

easier than the reformulation required for the regular WRAT spelling, there should be a consistent improvement in scores from the regular spelling test to the diagnostic test in all groups of students. It was therefore decided to administer the test to average classroom groups and groups of special education students enrolled in classes for the gifted, educationally handicapped, and educable mentally retarded. Using these groups, the following research hypotheses were investigated:

(1) There will be a significant difference in achievement on the WRAT spelling test among groups of gifted students, average students, educationally handicapped students, and educable mentally retarded students.

(2) There will be a significant difference in achievement on the Diagnostic Spelling Test among the groups.

(3) Students in all groups will achieve consistently higher scores on the Diagnostic Spelling Test than on the regular WRAT spelling test.

If error categories are to be diagnostically useful, the types of errors will differentiate between disabled learners and average students. Each type of error should also show discriminating power among the different groups in special classes. It is also possible that particular types of errors are made by particular groups of students. Therefore, the following additional research hypotheses were investigated:

(4) There will be a significant difference among the groups as to the number of errors made in each error category.

(5) There will be a significant difference among the groups as to the type of error made.

METHODOLOGY

The Diagnostic Spelling Test utilizes the WRAT Level II spelling list in a four-alternative multiple-choice format. Each incorrect alternative is designed to reflect a specific type of spelling problem frequently described in the literature as typical of disabled learners and not found in the general population. One incorrect answer contains a sequence reversal, one omits a sound or syllable, and one contains a gross sound substitution. It must be emphasized that none of the incorrect alternatives reflects what might be called "normal" spelling errors, such as double letters, silent letters, soft vowel sounds that could be represented by more than one letter, etc. However, in order that the nature of the error not dictate completely the pattern of the alternatives and perhaps set up some type of response set, the alternatives are somewhat disguised so that, for example, the word containing an omission is not always shorter in length than the other choices.

The regular WRAT spelling test was also given at the same testing session in order to (1) provide for comparison of relative difficulty of the multiple-choice test versus the standard spelling test, and (2) provide a standardized basis for assessing the normalcy of the student population in the regular classes.

Preliminary standardization was done on selected regular classes in the school district, plus students in a class for the gifted, students in classes for educable mentally retarded, and students in learning disability groups for the educationally handicapped. Students in all special classes met California state requirements for placement. All students in learning disability groups have been classified as neurologically impaired and/or emotionally disturbed by both psychological assessment and medical diagnosis. However, some of these students have been placed because of emotional problems without concomitant skill defects. Therefore, the EH groups cannot be considered as composed solely of disabled learners with deficiencies in skill areas.

Classrooms were selected on each of five campuses in the high school district, with regular classes at each grade level from nine through twelve. All EMR students were tested at two of three centers in the district. EH students were tested at each of the eight high schools in the district. The sample represents about 80 per cent of the total EH population in the district. Tests were administered to regular, EMR, and gifted groups in the spring of 1971. EH classes were tested in January, 1972. In each classroom the regular WRAT spelling test was given first in the prescribed manner for group administration. The Diagnostic Spelling Test was then given. The order of presentation was not varied because of the obvious influence of the multiple-choice alternatives on the WRAT spelling test. After instructions about how to mark answers, etc., the administration was identical with the presentation of the material on the WRAT spelling test. Tests were hand scored. The Diagnostic Spelling Test uses four punched keys to identify correct responses and each of the three types of errors represented by the incorrect alternatives. Scoring may also be done with a single answer sheet coded for the different alternatives. On both the regular WRAT spelling test and the Diagnostic Spelling Test, the score was the actual number of correct spellings or responses on the 46 test items. The usual five-point allowance for spelling of the name on the WRAT spelling was not used.

RESULT

Confirming our first hypothesis, statistically significant differences were obtained among the groups of gifted, average, educable mentally retarded, and educationally handicapped students (see Table 1). A consistent pattern can be noted, with average groups falling about half way between the gifted and the EH groups, with the EMR still more severely impaired.

Confirming our second hypothesis, statistically significant differences were also obtained among the groups on the Diagnostic Spelling Test (see Table 1). A similarly consistent pattern can again be noted. However, because of the lack of ceiling for the gifted students (a mean of 45.69 correct responses out of a possible 46), comparisons with that group are not valid. It is interesting to note that on this task the EH groups fall about half way between the average and the EMR groups, with the standard deviation about twice as large in the EH group as the regular group and somewhat larger than that found in the EMR group. The variability found in the EH group may be the result of the more heterogeneous group of students found in those classes. The average group showed a mean error rate of only 4 items per 46-item test. Educationally handicapped students showed a mean of 14 errors per test (a 30 per cent error rate), and the retarded students showed a mean of 23 errors per test (a 50 per cent error rate). Many of the retarded guessed at random after the first few words.

Confirming our third hypothesis, a significantly higher level of performance on the diagnostic test in comparison with the WRAT spelling was noted in all four groups. The improvement was expected, since the recognition task is much less complex than the reformulation required for the WRAT spelling test. However, some students performed at or near the same level on both tasks and others showed an unusually wide discrepancy, results which may be of diagnostic interest. Significant differences were obtained among the groups in amount of gain. However, the difference between the EMR and EH groups was significant only at the .05 level, while all others were significant at the .01 level.

Confirming our fourth hypothesis, significant differences were obtained among the groups as to the number of errors made in each error classification (see Table 2). However, since the gifted students made so few errors, that group was eliminated

from the comparison. Students in regular classrooms averaged 1 or 2 errors per category, EH students averaged 4 or 5 errors per category, and EMR's averaged 7 or 8 errors per category.

Our fifth hypothesis was not confirmed. No specific type of error pattern was observed for any particular group. All three types of errors were found in average as well as EH and EMR groups and in fairly proportional representation. However, a tendency was noted for average students to make more gross sound substitution errors than omissions or reversals, while EH and EMR students made more omission errors. All three groups made fewest errors in the reversal category.

DISCUSSION

The Diagnostic Spelling Test seems to distinguish with consistency among average, educationally handicapped, and educable mentally retarded students. A large amount of its discriminating power must be attributed to the use of the Wide Range spelling list, which has been extensively validated for increments of difficulty. However, the groups used in this preliminary work are not large enough to provide the kind of data which must be obtained in order to derive useful comparisons. Since the DST is an objective test, it could be adapted for machine scoring, using a scan sheet with answers placed in close proximity to the questions. There is already ample evidence to indicate that disabled learners do not do well on standardized tests where separate answer cards or sheets are used; therefore, any test blank would require careful preparation in order to avoid introducing new perceptual confusion into the task. Nevertheless, if the DST is to be properly standardized with the potential for use as a large-group testing device for identification of the learning disabled, then it is obviously essential that some procedure be developed to permit machine scoring. This direction for further study is presently being explored.

Of primary importance is obtaining a large sample of average students in regular classes, a requirement which could be easily obtained within the school district. If, for example, the test were given to all ninth graders in the district approximately 3,500 students would be involved. Much larger groups of special education classes could probably not be obtained, since the EMR groups used in the present study comprise two-thirds of the entire EMR student population of the district, and the EH group included approximately eighty per cent of the total EH population of the district.

Additional populations for standardization could possibly be secured through junior high schools in the area. The possibility of extending the investigation to include junior college and adult education classes should also be explored.

Populations designated as "average" may not represent any truly selected groups instead, the so-called "average" in the present investigation simply indicates students in "regular" heterogeneously grouped classes. No ability groupings were involved other than the exclusion of those students in EMR, EH, and gifted classes, which represent a tiny fraction of the total at any grade level. However, the average classes represented in this study showed a consistent ninth grade spelling level, with no significant differences between schools or grade levels 9 through 12 on the regular WRAT spelling test. However, the WRAT manual points out that the scores for students above the age of fourteen are more "arbitrary" than those for younger children, reflecting the leveling off of the growth curve beginning at that age. In older students the grade level scores are "statistical anchors of achievement rather than precise grade placement measures." By giving the DST across entire grade levels, it may be possible to assume representativeness in the sample without the corroborative evidence of individual WRAT spelling tests for each student, since the problems of administering and hand-scoring several thousand WRAT spelling tests on average students would seem prohibitive. A

grade-level sample could also use data obtained from the usual standardized testing done at that grade level for statistical comparisons.

Although the Diagnostic Spelling Test may prove to be a useful screening device for the identification of learning disabled students, it was primarily devised as a tool for differential diagnosis in students with established learning problems. The literature is replete with investigations of sequencing problems and auditory discrimination problems in connection with learning disabilities. These problems are usually studied separately with different instrumentation, and little direct comparison of the actual effect of these problems in language areas is possible. The Diagnostic Spelling Test provides information on individual students which may be easily compared objectively. It can then be compared with WRAT spelling scores and perhaps with WRAT reading scores. From visual inspection, individual students respond in a highly personal idiosyncratic way to the testing, frequently producing a pattern of omissions, sound substitutions, and reversals that clarifies the information obtained from the regular WRAT tests and from other material in a standard test battery. Perhaps it is even more interesting when a student performs on the Diagnostic Spelling Test in a way which seems to contradict his performance on other testing. At present we have no way to interpret the findings concerning specific errors made on the DST except in terms of their quantitative correspondence with those found in the specific groups which participated in the present study. A great deal of work in this area remains to be done. For example, it may be possible to take learning disabled students with particularly extreme results in specific error categories and examine their other testing carefully to determine possible patterns of strength and weakness. Using another approach, it may be possible to take students with known problems in auditory discrimination as measured by the Wepman, auditory memory as measured by the WISC or WAIS Digit Span, or auditory-motor problems as reflected in speech difficulties, and see if they present any consistent error patterns on the DST. The same procedure could be followed with

known problems in visual perception as measured by the Spraing Bender, visual memory as measured by the ITPA visual sequencing test, and visual motor ability as represented in handwriting or WISC Coding and WAIS Digit Symbol.

Since problems in sequencing are described by Boder as found in all three of her categories of auditory, visual, and mixed disabilities, it is possible that sequencing problems are not specifically related to one or another modality but represent an independent problem in learning. Omissions are sometimes seen as an aspect of sequencing and otherwise as problems in part-whole relationships. The present testing seems to indicate that problems in sequencing may or may not occur along with omission errors. It is interesting to note that the students involved in the present study made more omissions than sequence reversals, although reversal problems are far more frequently described in the literature. The gross sound substitutions represented by the errors on the Diagnostic Spelling Test may be related to a more specific problem in direct association of sound with a written equivalent. These are issues which must be explored.

We hope that eventually the Diagnostic Spelling Test will determine whether a particular type of error is associated with a specific disability to assist educators in the identification of students who can benefit from remediation. At present, disability remediation is largely trial and error—a "what works" approach. For each student the teacher must determine the most effective method. Identifying the effective method is probably the most difficult task teachers have. In the meantime, the student waits to learn while a variety of approaches are tried. The more clearly we can specify the areas of disability, the easier it will be to determine appropriate remediation techniques. The Diagnostic Spelling Test may prove to be a useful step in the search for ever more effective differential diagnostic tools for assessment of learning disabilities.

SUMMARY

The Diagnostic Spelling Test is an experimental modification of the Wide Range Achievement Test, Spelling (Level II), which measures a student's ability to identify the correct spelling of each word in a four-alternative multiple-choice format. Each incorrect alternative is designed to reflect a specific type of spelling problem found in disabled learners and not in the general population. It is designed for diagnostic use along with the regular WRAT reading and spelling tests to identify problems in cross-modal learning involving visual and auditory integration. It also has potential for screening large groups to identify students with specific learning disabilities.

PERFORMANCE BY GROUPS ON

THE WRAT SPELLING AND THE DIAGNOSTIC SPELLING TEST

Summary

		WRAT		DST	
Group	N	$\bar{X}$	SD	$\bar{X}$	SD
MGM	16	39.00	3.52	45.69	3.44
REG	152	26.49	7.69	41.88	4.07
EH	156	12.46	8.58	31.99	8.67
EMR	47	5.21	4.36	23.47	7.38

t Scores and F Scores

WRAT			DST		
REG	EH	EMR	REG	EH	EMR
11.37*	23.20*	30.44*	10.88*	19.20*	20.39*
	15.09*	23.04*		12.84*	16.15*
		7.71*			6.61*
$F_{3,367}$ = 174.57#			$F_{3,367}$ = 140.97#		

GAIN, WRAT to DST

t Scores and F Score

Groups	MGM	REG	EH	EMR
MGM		8.94*	12.83*	9.88*
REG			5.99*	2.98*
EH				1.42**

$F_{3,367}$ = 32.75 #

* Significant at .01
** Significant at .05
# Significant at .001

TABLE 1

SUMMARY DATA ON NUMBER OF ERRORS

TYPE OF STUDENT	N	NO. OF ERRORS	MEAN	S.D.	PROBABILITY OF ERRORS -3SD	-2 SD	-1 SD	$\bar{X}$	+1 SD	+2 SD	+3 SD
REGULAR											
SUBSTITUTION	152	275	1.81	1.97	0	0	0	2	4	6	8
OMISSION	152	190	1.25	1.71	0	0	0	1	3	5	6
REVERSAL	152	159	1.05	1.41	0	0	0	1	3	4	5
EMR											
SUBSTITUTION	47	356	7.57	2.81	0	2	5	8	10	13	16
OMISSION	47	360	7.66	3.33	0	1	4	8	11	14	18
REVERSAL	47	314	6.68	3.43	0	0	3	7	10	14	17
EH											
SUBSTITUTION	156	777	4.98	3.10	0	0	2	5	8	11	14
OMISSION	156	813	5.21	3.80	0	0	1	5	9	13	17
REVERSAL	156	606	3.89	3.19	0	0	1	4	7	10	14

TABLE 2

SUMMARY DATA ON TYPES OF ERRORS

TYPE OF STUDENT	TOTAL N TESTED	SUBSTITUTION N	SUBSTITUTION #	SUBSTITUTION # PER N	OMISSION N	OMISSION #	OMISSION # PER N	REVERSALS N	REVERSALS #	REVERSALS # PER N
MGM	16	1	1	1.00	1	1	1.00	3	3	1.00
REG	152	108	275	2.54	78	190	2.43	80	159	1.98
EH	156	150	777	5.18	141	813	5.77	138	606	4.39
EMR	47	47	356	7.57	47	360	7.65	46	314	6.82
GRAND TOTAL	371	306	1409	4.61	267	1364	5.11	267	1082	4.05

TABLE 3

PRELIMINARY

SCORING STANDARDS

Diagnostic Spelling Test

GROUPS	RESPONSES	MEAN	SD	RANGE OF AVERAGE SCORES (plus or minus .5 SD)
Regular	Correct	41.88	4.07	40 - 43
	Sound Substitutions	1.81	1.97	1 - 3
	Omissions	1.25	1.71	1 - 3
	Reversals	1.05	1.41	1 - 3
EH	Correct	31.99	8.67	28 - 36
	Sound Substitutions	4.98	3.10	4 - 7
	Omissions	5.21	3.80	3 - 7
	Reversals	3.89	3.19	2 - 6
EMR	Correct	23.47	7.38	19 - 27
	Sound Substitutions	7.57	3.81	5 - 9
	Omissions	7.66	3.33	6 - 9
	Reversals	6.68	3.43	5 - 9

TABLE 4

RAW SCORES
SAMPLE RH CLASS LIST

STUDENT	WRAT SPELLING	DST CORRECT	GAIN	ERRORS DST S	ERRORS DST O	ERRORS DST R
A	17	33	16	4	7	2
B	16	39	23	4	1	2
C	5	22	17	9	9	6
D	11	32	21	3	5	6
E	37	46	9	0	0	0
F	35	46	11	0	0	0
G	6	30	24	3	7	6
H	13	33	20	4	3	6
I	10	30	20	4	6	6
J	32	43	11	0	1	2
K	22	32	10	5	6	3
L	3	17	14	8	12	9
M	17	37	20	4	3	2
N	13	27	14	5	7	7
O	5	17	12	11	11	7
P	3	12	9	9	11	14
Q	3	24	21	5	11	6

TABLE 5

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